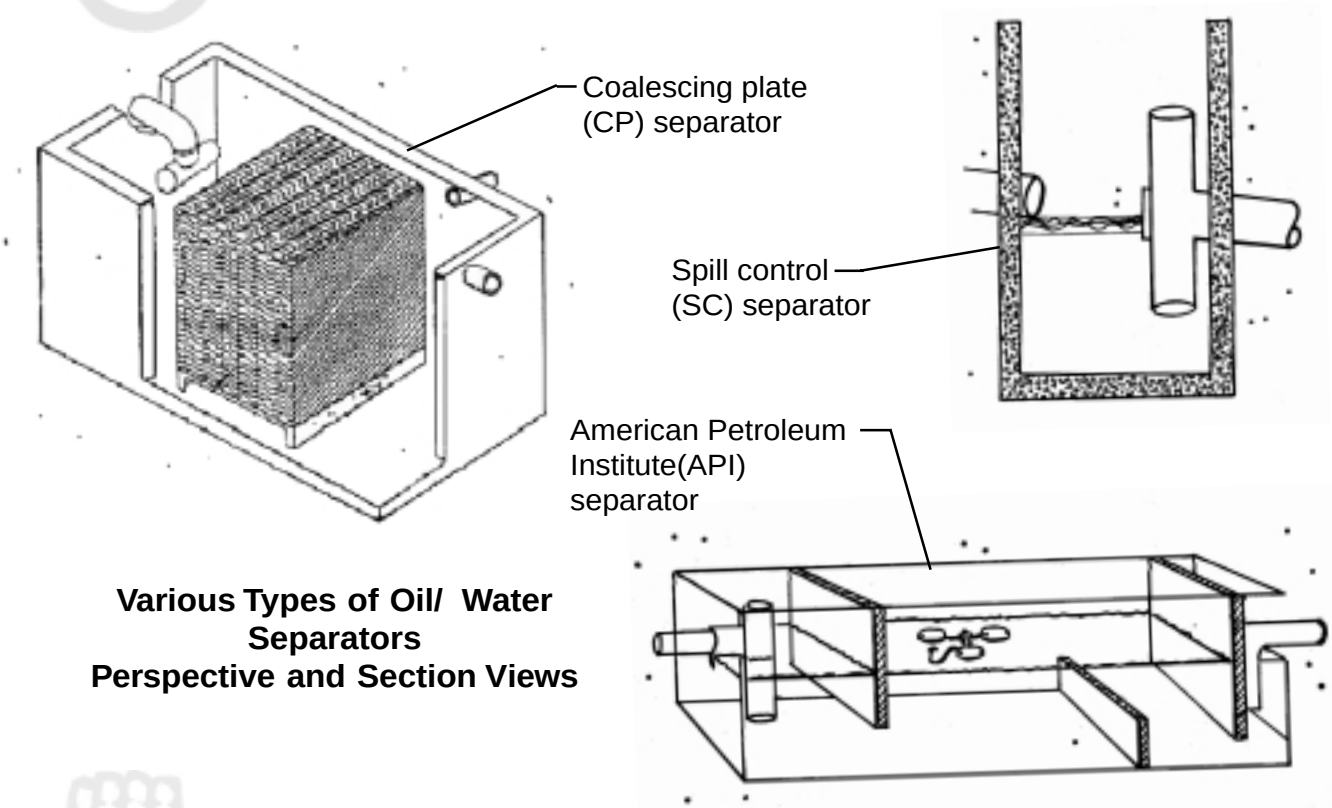
PRIMARY USE: Temporary storage of stormwater runoff to collect and separate effluent water consisting of multi-phase liquids of oils and industrial wastewater.
ADDITIONAL USES: May be used to purify water for reuse, in some site applications.

OIL / WATER SEPARATORS

What is it? Any device or piece of equipment which utilizes the difference in density between oil or petroleum products and water to remove the oil or associated chemicals from the water. Some basic types are the American Petroleum Institute (API) separator, Coalescing plate (CP) separator, and Spill control (SC) separator.

Purpose

Use to reduce the amount of effluent water contaminated with oil or other petroleum products released into the environment and to purify water for reuse.



Various Types of Oil/ Water Separators
Perspective and Section Views

Limitations

This practice should not be used for systems which collect processed effluent water contaminated with oil or other petroleum products that recover 201 gallons (760 liters) a day or more of any petroleum products with a Reid vapor pressure of 0.5 l psi (25 mm Hg) or greater.

Materials

An oil/water separator device/system with monitoring equipment.

Installation

Site assessment to evaluate if the oil/water separator will be beneficial. Proper size and type must be chosen for a specific site to ensure proper installation. The tank should be sized at 20 sq ft (1.85 sq m) of surface area per 10,000 sq ft (1000 sq m) of drainage area. Scheduled maintenance should be performed to provide for periodic removal of debris and to ensure that the devices are operating efficiently. As a general rule, surface facilities should undergo a drive-by inspection at least monthly and after any rain totaling 0.5 in (13 mm) or more in 24 hours.

Source: Training for Construction Site erosion Control and Stormwater Facility Inspection. National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

OIL / WATER SEPARATORS

Additional Considerations:

There are three basic types of oil-water separators: spill control unit, American Petroleum Institute unit, and coalescing plate separator unit. The spill control (SC) unit's purpose is to catch small spills; it is not capable of separating dispersed oil. The American Petroleum Institute (API) separator is a baffled tank that can separate "free" (unemulsified) oil but requires a relatively large volume for effectiveness. The coalescing plate (CP) separator can separate free oil in a much smaller volume because of the large surface area provided for oil collection by the corrugated plate pack.

The following guidelines generally apply to all types, except as noted.

Installation checks:

1. Is the type appropriate for the service?

2. Is the unit sized and installed as specified in the plans?

3. Are adequate removable covers provided for observation and maintenance?

4. Is runoff excluded from roofs and other areas unlikely to contain oil?

5. Is any pump in use placed downstream to prevent mechanical emulsification?

6. Is detergent use avoided upstream to prevent chemical emulsification?

7. For API and CP separators, is a forebay provided sized at 20 sq ft (1.85 sq m) of surface area per 10,000 sq ft (1000 sq m) of drainage area?

8. For API and CP separators, is an afterbay provided for placement of absorbents?

9. For the CP separator, are the plates no more than 3/4 in (19 mm) apart and at 45 to 60 degrees from horizontal?

Maintenance checks:

1. Is weekly inspection performed by the owner?

2. Are oil and any solids removed frequently enough (at least just before the main run-off period and then after the first major runoff event)?

3. Are absorbents replaced as needed, but at least at the beginning and end of the main runoff season?

4. Is the effluent shutoff valve operational for closure during cleaning?

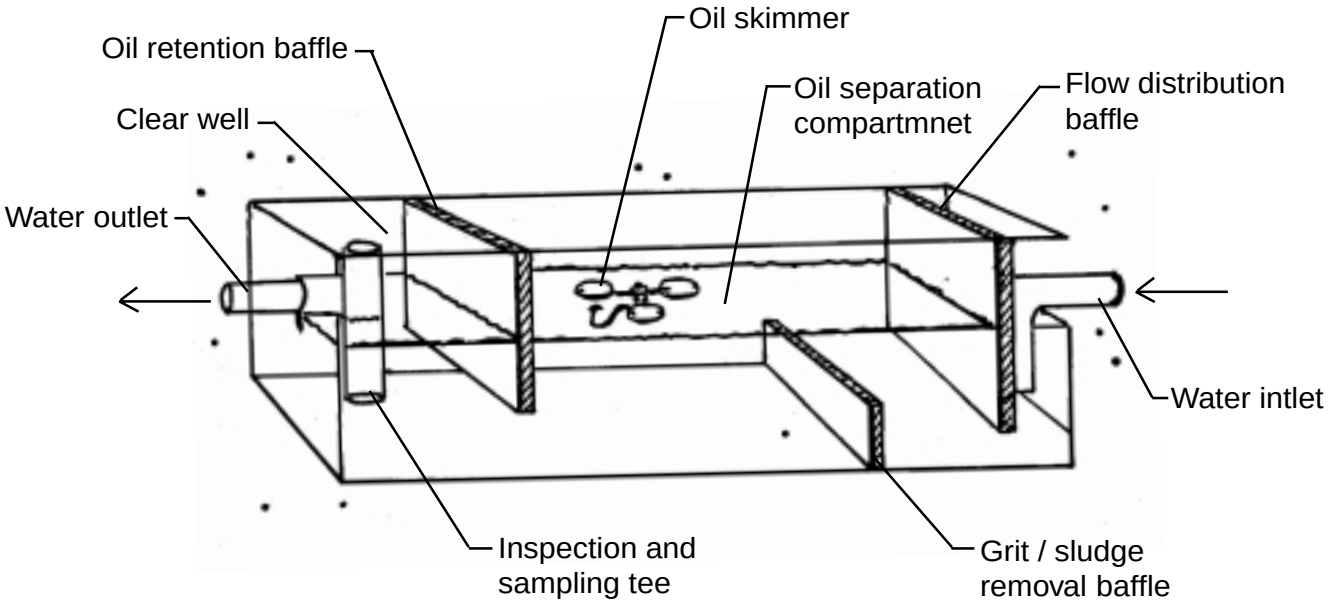
5. Are waste oil and solids disposed of as specified by regulations?

6. Is any standing water that is removed discharged to the sanitary sewer and then replaced with clean water?

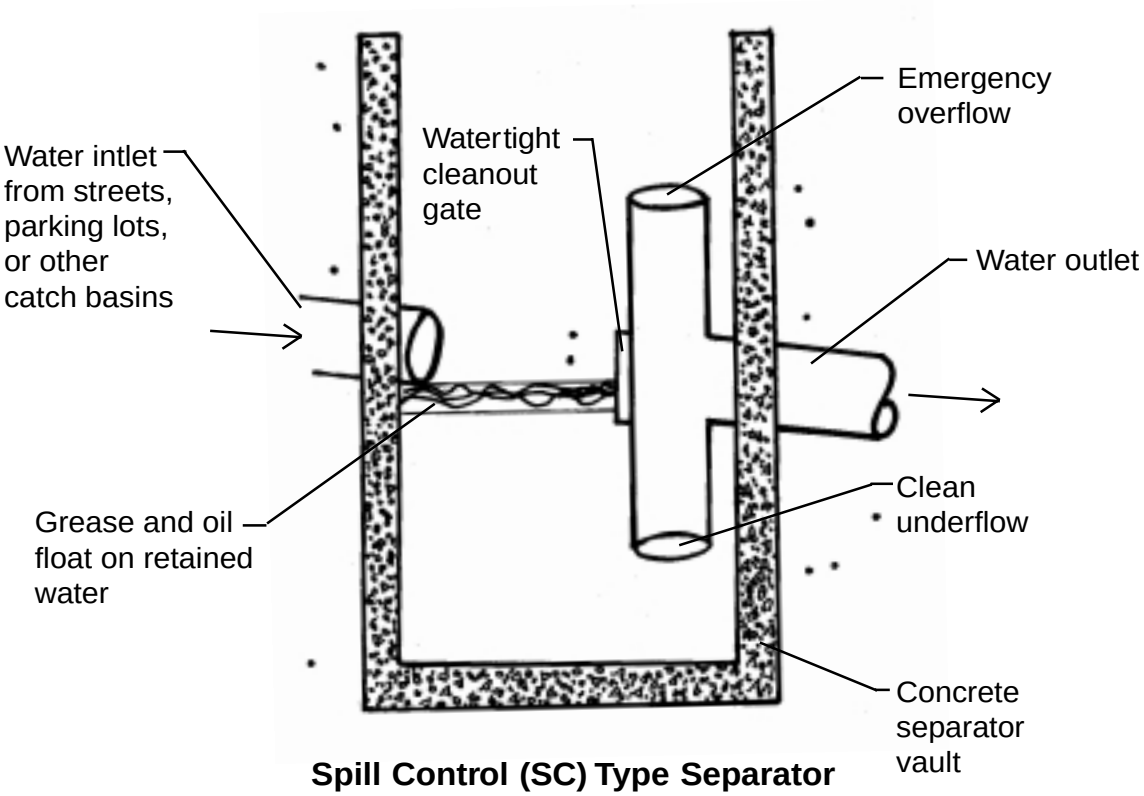
Source: Training for Construction Site erosion Control and Stormwater Facility Inspection. National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

OIL / WATER SEPARATORS

Additional Drawings:



American Petroleum Institute (API) Type Separator
Perspective View

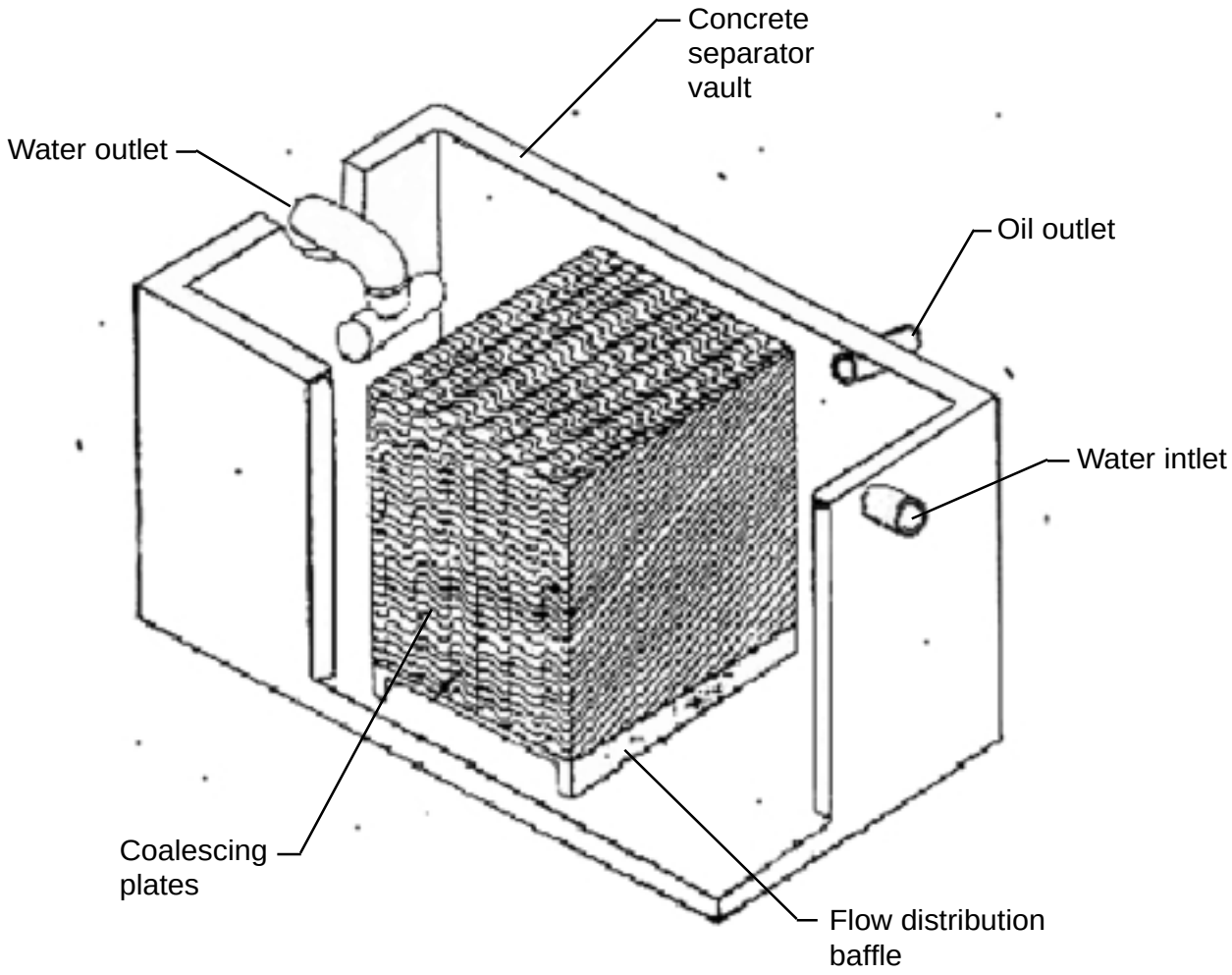


Spill Control (SC) Type Separator
Section View

Source: Training for Construction Site erosion Control and Stormwater Facility Inspection. National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

OIL / WATER SEPARATORS

Additional Drawings:



Coalescing Plate (CP) Type Separator
Perspective View

Source: Training for Construction Site erosion Control and Stormwater Facility Inspection. National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.